An Expert’s Guide to Hardscape Design

By Lori Lovely

As one of the largest unit concrete product manufacturers in North America, Oldcastle Architectural Products Group (APG) manufactures commercial retaining wall and permeable paver products as part of CRH’s Building Products division. CRH is a leading global diversified building materials group known for fabricating materials and products for the construction and maintenance of infrastructure, as well as commercial and residential applications.

Since 1995 Oldcastle's Belgard hardscaping products have included a variety of landscaping styles that work for any project. Part of the company's mission is to apply its extensive research and development of environmentally responsible technology and practices to create eco-friendly products. APG offers several products—including permeable pavers—that decrease a company's environmental footprint and can contribute to earning LEED credits for rainwater and heat island mitigation.
Why Permeable?

There are four million miles of paved roads in the US and an estimated 50% of urban surfaces that are impervious, according to the Earth Institute at Columbia University. Vast stretches of impervious pavement create drainage problems and prevent water from soaking into the ground, creating heat islands and preventing water from soaking into the ground, which then contributes to biological contamination of waterways and infrastructure, there are incentives now to convert impervious into permeable," Earley says. Unlike traditional detention basins, which require significant space, these pavers are multi-purpose, providing structural support for parking and pathways as well as functioning as a stormwater control measure. Similarly, Earley says permeable pavers are simpler to maintain than detention systems because they’re easily accessible; all maintenance is performed at the surface. Routine maintenance consists of sweeping or blowing away surface debris. If clogging occurs, it’s not difficult to vacuum or replace the joint material with chip gravel. Some of Belgard’s most popular permeable concrete pavers below.

Applications

You can use permeable pavers for residential and commercial driveways, walkways, parking lots, roads, and many other hard-scape applications, and they tend to be more popular in regions with a lot of rain or in older cities with combined sewers. "With new regulations mandating the use of additional green infrastructure, there are incentives now to convert impervious to pervious," Earley says. Unlike traditional detention basins, which require significant space, these pavers are multi-purpose, providing structural support for parking and pathways as well as functioning as a stormwater control measure. Similarly, Earley says permeable pavers are simpler to maintain than detention systems because they’re easily accessible; all maintenance is performed at the surface. Routine maintenance consists of sweeping or blowing away surface debris. If clogging occurs, it’s not difficult to vacuum or replace the joint material with chip gravel. See some of Belgard’s most popular permeable concrete pavers above.

What About Retaining Walls?

For centuries, civilizations have dry-stacked stone to build walls. This ancient technique is still used today. Oldcastle APG manufactures modular retaining wall blocks that are dry-cast interlocking concrete units placed without mortar. Designed to support a sloping face of soil, they are flexible, helping them outperform other types of walls in earthquake-prone regions because they move with the earth, according to Don Armstrong, western region regional market manager for Oldcastle. They also eliminate the need for frost depth footings in cold climates.

Oldcastle’s segmental retaining wall blocks are targeted toward three market segments—retailer (smaller product found at big-box stores for use by a homeowner on backyard projects), residential (medium-sized products contractors typically buy from dealers), and commercial (larger products used in conjunction with geosgrid, often used for roadway projects and by large land developers).

Design flexibility is a major benefit. “It’s easy for an engineer or contractor to modify a plan on the fly if site conditions change,” Armstrong says. There are few height limitations, enhancing creative options. It’s easy to transport and inexpensive to produce on a block machine. “We can create a lot quickly; they have a high production rate.”

For the retail product, the DIY aspect is an advantage, but even with the commercial product, Armstrong says the ease of installation makes it popular with contractors. And, of course, it’s attractive as well as functional. The blocks are available in a variety of colors, sizes, shapes, and textures that can be configured to form straight or curved lines, corners or angles, and steps. Why Permeable?

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Belgard’s Popular Permeable Concrete Pavers

Aquatile

Aquatile is the newest offering from Belgard available in different modular sizes. Aquatile’s interlocking spacer bars, micro-channel, and smooth surface are better suited for commercial applications. Aquatile has the ability to capture and hold water, which minimizes clogging and waste.

Eco Dublin

Eco Dublin is a multi-pattern paver that comes in three sizes, all with the look of cut stone to provide a classic aesthetic that is ideal for residential applications.

Turfstone

This concrete grid paver allows vegetation to grow, creating a desirable grass surface. “It has a 40% opening, as opposed to a 5 to 15% opening in typical permeable pavers,” Earley says. The open-weave design is permeable, allowing vegetation material (raised of gravel) to grow.